DOCKET NO: 249181US0CONT

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

BEFORE APPLICATION OF	:
PIERRE BLANCHARD, ET AL.	: EXAMINER: NILAND, P.
SERIAL NO: 10/781,686	:
FILED: FEBRUARY 20, 2004	: GROUP ART UNIT: 1714
RCE FILED: MARCH 22, 2006	
FOR: NOVEL RHEOLOGY REGULATORS SUCH AS GROUND NATURAL CALCIUM CARBONATES OPTIONALLY TREATED WITH A FATTY ACID OR SALT AND THEIR USE	:

SUPPLEMENTAL RESPONSE

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

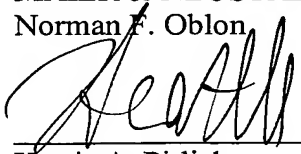
SIR:

Responsive to the Office communication dated April 26, 2006, **submitted herewith** is a Declaration under 37 CFR 1.132 of Mr. Peter Haldemann (Haldemann Declaration), to support the comparative data submitted with the RCE and amendment filed March 22, 2006.

It is respectfully requested that the suspension period be terminated, and examination on the merits be resumed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon



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Docket No.: 249181US0CONT

OBLON
SPIVAK
McCLELLAND
MAIER
&
NEUSTADT
P.C.
ATTORNEYS AT LAW

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

RE: Application Serial No.: 10/781,686
Applicants: Pierre BLANCHARD, et al.
Filing Date: February 20, 2004
For: NOVEL RHEOLOGY REGULATORS SUCH AS GROUND NATURAL CALCIUM CARBONATES OPTIONALLY TREATED WITH A FATTY ACID OR SALT AND THEIR USE
Group Art Unit: 1714
Examiner: NILAND, P.D.

SIR:

Attached hereto for filing are the following papers:

Supplemental Response; Declaration Under 37 C.F.R. §1.132 (Peter HALDEMANN, 3 pp., executed); Copy of Vestolit E 7031 = PVC in emulsion sold by Vestolit data sheet (1 page); Copy of Euretek 505 = Adhesion promoter, as described in the EC safety Datasheet or in col. 6 and Table II col. 7 of U.S. 4,533,524 (3 pages); Copy of Winnofil SPT and Socal = commercial coated precipitated calcium carbonate (PCC) from Solvay data sheet (1 page); Copy of the complete data from said lower of the two tables for said Product 1; in which the right margin was missing in the amendment filed March 22, 2006 (1 page)

Our check in the amount of **-0-** is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.
Norman F. Oblon

Harris A. Pitlick
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DECLARATION UNDER 37 C.F.R. § 1.132

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313

SIR:

I, Mr. Peter Haldemann, declare and state as follows:

1. I have been employed by OMYA AG since 1973. My present job title is Project Manager. My main tasks include application of calcium carbonate in liquid systems, such as PVC plastisols; new product development; processing of complaints; and determination of rheological properties.

2. I am aware that data was submitted with an amendment filed March 22, 2006 in the above-identified application. The data was generated by experiments that I conducted.

3. The data lists various commercial products. These products are:

Vestolit E 7031 = PVC in emulsion sold by Vestolit as detailed by the datasheet **attached herewith**;

DINP = Dinonyl phthalate as plasticizer;

true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

7. Further declarant saith not.

C. Waldeman
Signature

19.06.2006
Date

Weisskalk Super 40 = Calcium oxide as dehydrating agent;

Euretek 505 = Adhesion promoter, as described in the EC safety Datasheet or in col. 6 and Table II col. 7 of U.S. 4,533,524, **attached herewith**;

Irgastab BZ529 = Stabilizer from Ciba;

Winnofil SPT and Socal = commercial coated precipitated calcium carbonate (PCC) from Solvay, detailed by the datasheet, **attached herewith**.

Winnofil SPT (FOK) and Winnofil SPT (Coatex) are two different samples of the same product. Similarly, Socal 312 (VOK) and Socal 312 (Coatex) are two different samples of the same product.

The experiments were carried out according to the description at page 7, lines 3-19 of the specification of the above-identified application, with the following additions and exceptions, as noted below.

4. Viscosity of the PVC plastisol was measured at 23°C. The difference between 20°C and 23°C is not significant. In addition, a flow curve is measured with an ascending ramp, holding time and a descending ramp, e.g., ascending ramp 20 s-1 to 300 s-1, holding time at 300 s-1, descending ramp 300 s-1 to 20 s-1. Only a descending ramp was used for the evaluations in the data. Measurement was made at three time periods, to provide information about the stock stability. "Yield point Bingham" refers to the commonly used "yield point," and is the resistance to initial flow, or represents the stress required to start fluid movement.

5. I have also been told that part of the rheological property data for Product 1 in the lower of the two tables constituting table 1 that was part of the data submitted with the amendment filed March 22, 2006 is missing at the right margin thereof. **Attached herewith** is a copy of the complete data from said lower of the two tables for said Product 1.

6. The undersigned declares further that all statements made herein of his own knowledge are true and that all statements made on information and belief are believed to be

VESTOLIT

Produktinformation
VESTOLIT ® E 7031
Polyvinylchlorid für die Pastenverarbeitung

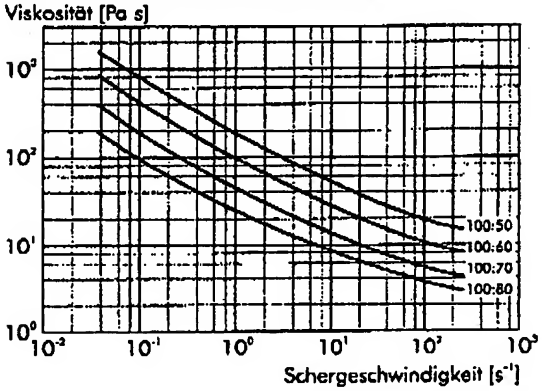
VESTOLIT E 7031 ist ein verpastbares Homopolymerisat, welches zur Herstellung von hochviskosen Pasten mit ausgeprägt pseudoplastischem Fließverhalten vorwiegend für die Kompaktverarbeitung geeignet ist.

Das Produkt ist mit allen gängigen Systemen ausgezeichnet stabilisierbar.

Einsatzgebiet	Kompakt	Schaum
Kunstleder	○	○
Bodenbeläge		
Tapeten/Wandbeläge		
Planenstoffe	●	
Trägerlose Folien	○	○
Tauchen/Gießen	○	
Spritzen/Sprühen	●	

● empfohlenes Einsatzgebiet ○ mögliches Einsatzgebiet

VESTOLIT E 7031/DEHP-Verhältnis



Abhängigkeit der Viskosität von der Schergeschwindigkeit nach 2 h Lagerung, gemessen in einem Rotationsviskosimeter bei 25 °C

Typische Eigenschaften	Messmethode	Einheit	Messwert
K-Wert	DIN EN ISO 1628-2		70
Viskositätszahl	DIN EN ISO 1628-2	cm^3/g	125
Schüttdichte	ISO 60 / DIN 53 466	g/cm^3	0,45
Siebanalyse Rückstand auf 0,063 mm-Sieb	ISO 1624 / DIN 53 195	%	< 1
Wassergehalt nach K. Fischer	DIN 53 715	%	< 0,3
pH-Wert des wässrigen Auszuges	DIN EN ISO 1060-2	-	9
Pastenviskosität[1] 1,5 s^{-1}		Pa s	50
Pastenviskosität[1] 45 s^{-1}		Pa s	11

[1] 100 T PVC, 60 T DEHP – gemessen nach zwei Stunden Lagerung bei 25°C in einem Rotationsviskosimeter mit definiertem Scherspalt

VESTOLIT E 7031 wird dort bevorzugt eingesetzt, wo das Verarbeitungsverfahren ausgeprägt pseudoplastische Pasten erfordert. Dieses gilt u.a. für die Direktbeschichtung offener Gewebe, für die Herstellung von Schaumkunstleder im Zweistrichverfahren und für Spritzverfahren, wie z.B. bei der Unterbodenschutzbeschichtung von Kraftfahrzeugen.

Stand: 2001-01-19

VESTOLIT GmbH & Co. KG • D-45753 Marl • Postfach 10 23 60
Telefon 0 23 65/49-05 • Telefax 0 23 65/49-40 00

EC safety data sheet

Ciba SpezialitÄtenchemie
Bergkamen GmbH

EURETEK 505
Version: 1 Last change: 04/08/98 Date of issue: 07/08/98

1. IDENTIFICATION OF SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

Trade name : **EURETEK 505**

Company : Ciba Spezialitätenchemie Bergkamen GmbH
Ernst-Schering-Str. 14
59192 Bergkamen

Phone number : 02307/65-7 Fax:
Emergency phone : 02307/65-3777

Contact person

Dr. Stangl
Phone number : 02307/65-2510 Fax:

2. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical characterization : **preparation**

Polyaminoamide

Ingredients	**CAS-no.**	**Hazard symbols**	**R-phrases**	**Concentration**
Triethylenetetramine	112-24-3	C	R21-R34-R43-R52-R53	< 10 %

3. HAZARDS IDENTIFICATION

Hazards identific. : Irritating to eyes and skin. May cause sensitization by skin contact.

4. FIRST AID MEASURES

Eye contact : Immediately flush eyes with running water for at least 15 minutes without interruption. Visit doctor.
Skin contact : Remove contaminated clothing immediately. Rinse affected skin with copious amounts of water, using a mild cleaning agent. Visit doctor if irritation occurs and persists.
Inhalation : Remove injured person to fresh air. Visit doctor.
Ingestion : Do not induce vomiting. Drink water in small sips. (Diluting effect) Drink citrous fruit juice for neutralization. Visit doctor.

maximum value actually attainable for the calculated theoretically possible content for a particular mixture.

However, when the value of either X or Y is under 40%, the value of the other component should be at least 40+Z% (Z being the difference between the smaller value and 40), but preferably 40+2Z%, in order that a pronounced effect may be achieved.

The range in which both values are low is less preferred but still possible, within narrow limits. Thus, if one value is under 40% and the other under 50%, the difference between the smaller value and 40 should not be greater than 10.

The advantages offered by the invention are that the plastisol mixtures have practically unlimited storage stability, exhibit no or only minimal color changes after baking, and permit the adhesive strength to be markedly increased. A film applied to a substrate and exposed uncured to a humid atmosphere will yield a pore-free coating (no bubble formation) after baking. Further, and especially, these improvements can be secured with suitable formulations also with low concentrations of adhesion promoter at baking temperatures of 90° C. and up, and preferably of 110° C. and up.

The baking temperature which is optimum for a given polyvinyl chloride formulation (and which depends also on the gelation temperature of the PVC formulation used) can usually be simply determined by trial and error.

Suitable substrates for coating or bonding are all materials commonly used in this field, and particularly metals and glass.

Optionally, the polyaminoamide/polyaminoimidazoline mixtures described above and used in accordance with the invention may be converted to the corresponding Schiff bases and, optionally, enamines, by means of commonly used ketones such as acetone, methyl ethyl ketone, diethyl ketone, methyl isobutyl ketone, cyclohexanone, cyclopentanone, diisobutyl ketone, 3,3,5-trimethylcyclohexanone or methyl phenyl ketone, or aldehydes such as acetaldehyde, butyraldehyde, isobutyraldehyde, or benzaldehyde.

The reaction is carried out by known methods and may be catalyzed with acids and conducted with or without solvents. It is also possible to use the carbonyl compounds themselves in place of a solvent as an entrainer for the water or reaction to be eliminated.

Optionally, adducts of the free amino groups of the above polyaminoamides/polyaminoimidazolines may be formed with epoxy compounds used in deficiency.

Suitable epoxy compounds are, for example, epoxides derived from polyhydric phenols, and in particular bisphenols such as diphenylolpropane (bisphenol A), diphenylolmethane (bisphenol F), and phenol-formaldehyde condensation products (novolacs), as well as from aromatic di- and polycarboxylic acids, for example the phthalic acids.

The adducts are obtained by reacting an equivalent of active hydrogen of the amine compound with from 0.5 to 0.005, and more particularly from 0.2 to 0.03, equivalent of epoxide oxygen of the polyepoxide.

Moreover, the mixtures of polyaminoamides and polyaminoimidazoline, their epoxy adducts containing amino groups, as well as the Schiff bases and, optionally, enamines which can be prepared from these two product groups, may also be mixed with one another and used as adhesion promoters.

A better understanding of the invention and of its many advantages will be had by referring to the following Examples, given by way of illustration.

The fatty acids used in the Examples have the following composition, determined by gas-liquid chromatography (GLC):

(1)	Monomeric fatty acid	9%
	Dimeric fatty acid	75%
	Trimeric and higher polymeric fatty acids	16%
(2)	Monomer fatty acid	1%
	Dimeric fatty acid	25%
	Trimeric and higher polymeric fatty acids	74%
(3)	Monomeric fatty acid	1%
	Dimeric fatty acid	96%
	Trimeric and higher polymeric fatty acids	3%

PREPARATION OF ADHESION PROMOTERS FOR THE PLASTISOLS OF THE INVENTION

Promoter Compositions I–VI

I. In certain of the compositions tabulated below, the carboxylic acids named in the table were added to a commercial adhesion promoter available under the tradename "EURETEK 505" and the mixture was subjected to secondary condensation by being heated under nitrogen to 210° C. and held at that temperature for 1 hour. A vacuum of about 100 mm Hg was then applied for 1 hour and secondary condensation was carried out for a further hour at 210° C. and 100 mm Hg. The conditions of condensation may be varied conventionally depending on the desired imidazoline content. ["EURETEK 505" is made by condensing 28 parts of a dimeric fatty acid comprising 9% of monomeric acid, 75% of dimers, and 16% of trimeric and higher polymeric acids, and 28 parts of a dimeric fatty acid comprising 1% of monomeric acid, 25% of dimers, and 74% of trimeric and higher polymeric acids (saponification number = 195; acid number = 180) with 29.9 parts of triethylene tetramine (amine number = 1420). The product has an amine of 380 and an imidazoline content of 60%].

The reaction products obtained were added to a plastisol as a 60% mixture with the plasticizers named, where DOP is dioctyl phthalate and BZA is benzyl alcohol.

II. In place of "EURETEK 505", the polyaminoamide commercially available under the tradename "VERSAMID 140" was condensed and used as above. ["VERSAMID 140" is made by condensing 290 parts of the same dimeric acid mentioned above for the synthesis of "EURETEK 505" with 156 parts of triethylene tetramine. The product has an amine number of 367 and an imidazoline content of 60%].

III. In place of "EURETEK 505", a polyaminoamide according to German patent application DAS No. 26 54 871 and made from 800 g of polymeric fatty acid (1), 200 g of polymeric fatty acid (2), and 534 g of triethylene tetramine was prepared (amine number = 387; imidazoline content = 78%) and was condensed and used as above.

IV. Example 3 was followed to prepare a commerical polyaminoamide, except that 800 g of fatty acid (3) were used as the polymerized fatty acid, condensed

with 334 g of triethylene tetramine (amine number =375; imidazoline content =75%).

V. 100 g of the condensation product of "VERSAMID 140" plus 5% of azelaic acid, reported as Example 11 in Table I below, were further reacted with 3% of a diglycidyl ether comprising bisphenol A and having an epoxy value of 0.53 to form an adduct by stirring at 80° C. for 6 hours. The properties of a plastisol containing this promoter composition are reported in Example 14 in Table I.

VI. 100 g of the condensation product of "VERSAMID 140" plus 5% of isophthalic acid, reported as Example 10 in Table I below, were further reacted with an excess of methyl ethyl ketone under reflux with a water separator until water separation was complete. Excess ketone was distilled off in vacuum leaving a product containing ketimine groups. The properties of a plastisol containing this promoter composition are reported as Example 15 in Table I.

PREPARATION OF PLASTISOLS

1 weight percent of the adhesion promoters named, or of any desired mixtures thereof, based on the total mixture, was added to a plastisol composed of

45 parts by weight of polyvinyl chloride having a K value of 70 and adapted to be made into a paste,
55 parts by weight of phthalic acid di-2-ethylhexyl ether,
100 parts by weight of a filler mixture of 50% of chalk and 50% of barium sulfate, and
1.5 parts by weight of diisobutyltin isooctylthioglycolate ester.

However, the adhesion promoters may also be added to commonly used plastisol formulations other than the one specified above in order to obtain self-adhesive plastisols in accordance with the invention.

The bond strengths of adhesive bonds obtainable with the plastisols of the invention were determined according to DIN 53 283 by measuring the tensile shear strength. For this purpose, type 901 bonderized metal sheets obtainable from Metallgesellschaft, Frankfurt, were used as parts to be bonded. These were 2.5 cm wide, 10.5 cm long, and 0.15 cm thick. The thickness of the layer of plastisol forming the adhesive joint was set by means of spacers to 2 mm. The parts were heated at 160° C. for 30 minutes and in the process bonded to overlap one another by 15 mm. The tensile shear strengths listed under "Bond strength" in following Table I were obtained.

TABLE I

Examples in accordance with the invention

Example	Promoter Composition		Characteristic values: Amine value	Imidazoline percentage	Bond strength (kp/cm^2)	60% mixture with
1	"EURETEK 505" plus 5% phthalic acid	I	337	53	22.8	DOP
2	As above	I	338	63	22.0	
3	"EURETEK 505" plus 5% dimethyl terephthalate	I	385	60	24.4	DOP/BZA 9:1
4	"EURETEK 505" plus 10% dimethyl terephthalate	I	286	—	26.5	DOP/BZA 1:1
5	"EURETEK 505" plus 5% isophthalic acid	I	345	67	23.9	DOP/BZA 8:2
6	"EURETEK 505" plus 10% isophthalic acid	I	296	61	24.4	BZA
7	"EURETEK 505" plus 5% benzoic acid	I	348	—	21.4	DOP/BZA 9:1
8	"EURETEK 505" plus 5% azelaic acid	I	343	—	23.2	DOP/BZA 9:1
9	"VERSAMID 140" plus 5% dimethyl terephthalate	II	343	67	17.8	DOP/BZA 9:1
10	"VERSAMID 140" plus 5% isophthalic acid	II	346	60	16.6	DOP
11	"VERSAMID 140" plus 5% azelaic acid	II	345	72	17.9	DOP/BZA 9:1
12	Polyaminoamide according to German patent application DAS 26 54 871 plus 5% dimethyl terephthalate	III	343	—	21.9	DOP/BZA 9:1
13	Commercial polyaminoamide plus 5% dimethyl terephthalate	IV	338	—	17.8	DOP/BZA 9:1
14	Example 11 plus 3% diglycidyl ether	V	334	72	19.8	DOP/BZA 9:1
15	Example 10 plus methylethyl ketone	VI	250	60	20.2	DOP/BZA 9:1

TABLE II

Comparative examples without concurrent use of carboxylic acids

Example	Composition	Prepared in accordance with Example	Characteristic values: Amine value	Imidazoline percentage	Bond strength (kp/cm^2)	60% mixture with
1	"EURETEK 505"	—	376	60	16.2	DOP
2	"VERSAMID 140"	—	367	60	15.5	DOP/BZA 9:1

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SOCAL® and WINNOFIL® :Partners in all applications

Type	Fine		Ultrafine	
Surface treatment	Uncoated		Uncoated	Coated
Available grades	SOCAL® 90A	SOCAL® P1V, P2, P2V, P2E, P3, 92E, 93V, 94V, NP, N2, N2R, NZ, E2, E2 Ph.Eur., P2 Ph.Eur., P2VPh	SOCAL® 31, U1, U3	SOCAL® 311, 312, 312V, 322, 322V, U1S1, U1S2 WINNOFIL® S, SPM, SPT, SPT Premium, FX
Crystal form	Aragonite	Calcite		
Crystal class	Ortho-rhombic	Scalenohedral		
Crystal shape	Needle like 	Cigar like 	Cube like 	
Mean particle size (nm)	300 -> 200		70	70 -> 40
Specific surface (m2/g)	6 -> 10		20	20 -> 35
Brightness (%)	97 - 98		97	95 - 96
Flow point (cm3/15 g)	15 - 45		40	Not applicable
Yield value Bingham (Pa)	Not applicable		110	130->180
Viscosity (Pa.s)	Not applicable		1,8	2,0->2,5

Product 1

24 h	7 days	30 days
162	136	149
240	223	243
306	299	335
371	372	421
440	446	501
492	517	574
550	588	647
609	651	729
663	717	797
722	775	863
771	847	930
844	937	1006
878	991	1100
938	1066	1215
985	1143	1293

134	85	92